OMB Control Number: 2040-0281 Plant ID: Insert Plant ID
Approval Expires: 05/31/2013 Plant Name: Insert Plant Name



Steam Electric Questionnaire

PART G - LEACHATE SAMPLING DATA FOR PONDS/IMPOUNDMENTS AND LANDFILLS

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PART G. LEACHATE SAMPLING DATA FOR PONDS/IMPOUNDMENTS AND LANDFILLS

INSTRUCTIONS

Complete Part G of the questionnaire for your plant. As you are completing the electronic form, note the following: When you enter your plant name and plant ID on the Part G TOC tab, all name and ID fields throughout Part G will automatically populate. Refer to the overall questionnaire instructions, the glossary, and the acronym list for assistance with completing Part G.

Please provide all free response answers in the highlighted yellow areas. Throughout Part G, you may need to make copies of certain sections/questions. Instructions are provided throughout Part G regarding making copies. Note that pond/impoundment unit and landfill names must be populated on the copied tab or section, located in the upper right corner under "Plant ID" and "Plant Name", in order to correlate the requested information with the pond/impoundment or landfill.

Use the Part G Comments tab to do the following: provide additional information as requested in certain questions within Part G; indicate atypical data (e.g., if the analytical data provided from the sample collection is not representative of normal operations); and note methods used to make best engineering estimates in the event that exact data are not available.

Sampling data and the completed Part G of the questionnaire shall be submitted to EPA no later than 120 calendar days after receiving the questionnaire.

A company or plant may be exempt from the leachate sample collection (Question G3-1). Please refer to Question G1-1 and the "Applicability" section located in the "Part G Section 3" tab to determine if you are exempt and how to submit a written explanation.

Approved: May 20, 2010

Part: G

Section Title: 1. Leachate Collection

Instructions: Part G requests leachate sampling data for pond/impoundment units and landfills used for the storage, treatment, and/or

disposal of *residues* or by-products (or *sludges* or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, *fly ash*, *bottom ash*, boiler slag, or flue gas

desulfurization (FGD) system residues. This includes liquid-borne material and solid material.

CBI?

Yes

G1-1. Is *leachate* currently collected from any *pond/impoundment* and/or *landfill*, including those located on non-adjoining property, that contains residues or by-products from the combustion of coal or petroleum coke? Please see the glossary for a complete definition of *leachate*, which includes the terms seepage, leak, and leakage.

Note: This includes landfills located on non-adjoining property that are under the operational control of the plant. This also includes landfills, within 20 miles, owned/operated by the plant's ultimate parent firm, for the purpose of storing/disposing of process wastewaters, residues or by-products, from the plant.

O Yes (Skip to Section 2)

O_{No} (Skip to next Questionnaire Part)

Plant ID: Insert Plant ID

Plant Name: Insert Plant Name

Pond/Impoundment Unit or Landfill ID: Insert ID

Part: G

Section Title: 2. Leachate Generated from Ponds/Impoundments and Landfills

Instructions: Make copies of Section 2 (Questions G2-1 through G2-4) for each *pond/impoundment* unit and *landfill*, including those located on non-adjoining property, used for the storage, treatment, and/or disposal of *residues* or by-products (or *sludges* or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, *fly ash*, *bottom ash*, boiler slag, or flue gas desulfurization (FGD) system residues. This includes liquid-borne material and solid material. Enter the pond/impoundment unit or landfill ID in the space provided above (use pond/impoundment unit and landfill IDs assigned in Table A-4 and Table A-6). Please provide all free response answers in the highlighted yellow areas.

Note: This includes landfills located on non-adjoining property that are under the operational control of the plant. This also includes landfills, within 20 miles, owned/operated by the plant's ultimate parent firm, for the purpose of storing/disposing of process wastewaters, residues or by-products, from the plant.

Make a copy of Section 2 for each pond/impoundment unit and landfill, including those located on non-adjoining property, using the "Copy Section 2" button below.

Note: "Treatment" refers to the removal of specific pollutants or process wastewater constituents other than suspended solids. Refer to Figure G-1 below to help determine the leachate sample collection requirements for this pond/impoundment or landfill.

Copy Section 2

(Continue)

O No

CBI? ☐ Yes	G2-1. Is <i>leachate</i> originated)	e currently collected from this pond/impoundment unit or landfill (excluding leachate returned to the pond/impoundment from which it?
	○ Yes	(Continue)
	○ No	(Skip to Section 5)
CBI? ☐ Yes	G2-2. Is all collec	cted leachate transported off site for treatment and/or disposal?
	○ Yes	(Skip to Section 3. Provide ONLY untreated monitoring data as described in Question G3-1.)

CBI? □ Yes	G2-3. Is the coll	ected leachate from this pond/impoundment	unit or landfill that is not transferred off site currently <u>treated</u> ?
CBI? □ Yes	○ Yes	(Continue)	
	○ No	(Skip to Section 3. Provide ONLY untre-	ated monitoring data as described in Question G3-1.)
	G2-4. Is the lead	chate combined with other waste streams pri	or to treatment?
	O Yes, com	pined with ONLY runoff or other stormwater	(Provide treated and untreated monitoring data as described in Question G3-1
	O Yes, com	pined with process wastewater other than runoff/stormwater	(Provide ONLY untreated monitoring data as described in Question G3-1)
	○ No		(Provide treated and untreated monitoring data as described in Question G3-1

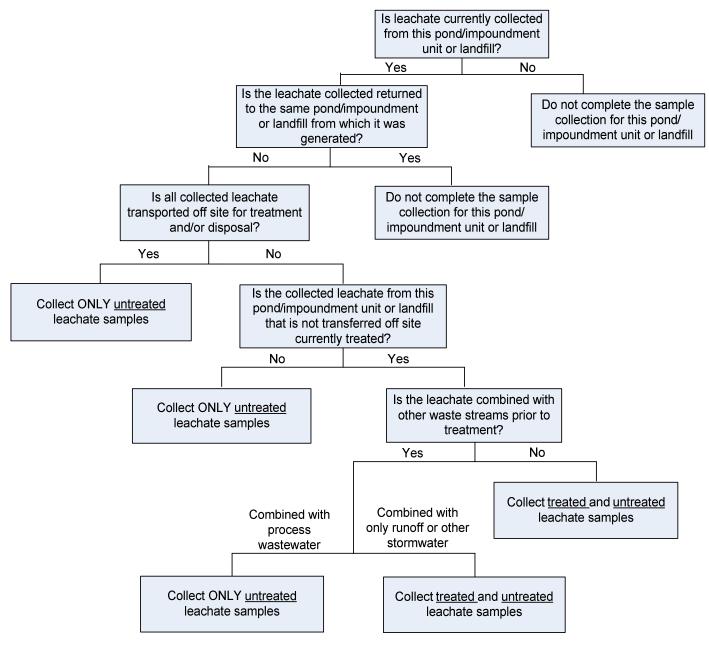


Figure G-1. Leachate Collection Decision Tree

Part: G

Section Title: 3. Leachate Sample Collection Instructions

G3-1. OVERVIEW OF THE SAMPLE COLLECTION

Collect process wastewater samples of <u>untreated</u> and/or <u>treated</u> leachate streams generated from pond(s)/impoundment(s) and landfill(s) used for the storage, treatment, or disposal of residues or by-products (or sludges or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, fly ash, bottom ash, boiler slag, or flue gas desulfurization (FGD) system residues (this includes liquid-borne material and solid material).

Sampling data and the completed Part G of the questionnaire shall be submitted to EPA no later than 120 calendar days after receiving the questionnaire.

The samples should be collected as detailed in these instructions. In general, samples should be collected as grab samples (i.e., composite samples are not required). The plant should collect samples from each leachate collection point for each pond/impoundment and landfill. If the plant determines that a sample from one or more collection points are representative of an individual pond/impoundment or landfill, then the plant may simply collect the representative sample(s). The plant should collect samples from each sampling location once per week for four consecutive weeks, or as soon thereafter as sufficient leachate is available for collection.

The following analytes and analytical methods must be used for the sample analysis:

 Metals (total recoverable; antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc)

• Metals (total recoverable: aluminum, EPA Method 200.7 or 200.8 barium, boron, calcium, iron, magnesium, sodium, tin, and titanium)

Mercury	EPA Method 1631E
Chlorides	40 CFR Part 136-approved
• Sulfates	40 CFR Part 136-approved
 Total dissolved solids (TDS) 	40 CFR Part 136-approved
 Total suspended solids (TSS) 	40 CFR Part 136-approved
• pH	40 CFR Part 136-approved

Each company or plant is responsible for identifying and contracting an analytical laboratory to perform the analyses.

APPLICABILITY

A plant may be exempt from the leachate sample collection (and skip to Question G3-2) if one of these two circumstances is true:

- 1. The plant can provide previously collected leachate characterization data if it fulfills the following data requirements:
 - Must have data from leachate generated from each pond/impoundment and landfill where leachate is collected;
 - Must have at least four samples of <u>untreated</u> and/or <u>treated</u> leachate, where each sample is collected at least five days apart; and
 - Must have tested for every analyte listed above using the specified analytical methods.
- 2. The plant personnel are unable to collect the samples safely.

If you believe you are exempt, you must submit a written explanation justifying one or both of these two circumstances within two weeks after receiving the questionnaire by e-mail (preferred) or mailed to:

Jezebele Alicea US EPA Engineering and Analysis Division Mail Code: 4303T 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 alicea.jezebele@epa.gov

EPA will then determine if the plant is exempt from the leachate sample collection requirement. If the plant can provide previously collected leachate characterization data, then the plant should complete Section 4 (Questions G4-1 and G4-2) and continue to Section 5 (Question G5-1). Also, the plant must provide the leachate sampling data in Table G-4 found in the "Part G Sampling Results" tab. If the plant cannot collect the samples safely, then the plant should skip Section 4 and continue to Section 5 (Question G5-1).

SAMPLE LOCATION

Collect <u>untreated</u> and/or <u>treated</u> leachate samples from each pond/impoundment unit and landfill for which you responded "yes" in Question G2-1.

The <u>untreated</u> leachate samples must be collected directly from the *leachate collection system* or holding tank prior to any form of treatment. The <u>treated</u> leachate samples must be collected from the effluent from a leachate treatment system that is designed for the purpose of removing pollutants or process wastewater constituents, other than suspended solids, prior to *discharge* or commingling with other process wastewaters.

If the pond/impoundment unit and/or landfill has multiple collection points, the <u>untreated</u> sample may be collected from a common header area, if applicable. If there is not a common header area for the pond/impoundment or landfill, the plant may select one of the collection points that is "representative" of the pond/impoundment or landfill from which to collect the sample. If warranted due to the characteristics of the pond/impoundment or landfill, the plant may need to collect samples from more than one collection point to obtain representative samples. If the plant collects the samples from one "representative" collection point, describe how the company or plant determined the collection point is "representative" of all of the collection points in the "Part G Comments" tab located at the end of Part G.

SAMPLE FREQUENCY

Collect one sample of <u>untreated</u> leachate (and one sample of <u>treated</u> leachate if appropriately identified by responses in Question G2-4) once per week for four weeks, or as soon thereafter as sufficient leachate is available for collection, from each pond/impoundment unit and landfill. Please note that the samples must be collected at least five days after the previous sample was collected. If the pond/impoundment or landfill does not generate leachate weekly, please collect the samples as soon as the leachate is generated, but allow at least five days between samples.

Example1: If a plant collects only <u>untreated</u> leachate from a pond/impoundment unit, and the samples are obtained from a single leachate collection point, the plant is required to collect a total of four samples.

Example 2: If a plant collects both <u>untreated</u> and <u>treated</u> leachate from both a pond/impoundment unit and a landfill, and each separately has a single leachate collection point and they have separate treatment systems, the plant is required to collect a total of sixteen samples.

SAMPLE ANALYSES

After receiving the analytical results from the laboratory, enter the analytical data into the "Part G Sampling Results" tab. Report all results, including those below the reporting limit. Identify results that are less than the *method detection limit* (MDL), and results that are between the detection and *reporting limits*. For example, if the MDL is equal to 5 ng/L, the reporting limit is equal to 15 ng/L, and the value reported by the laboratory is 12 ng/L, report 12 ng/L as the measured value and identify and describe any qualifiers on the data in the corresponding column. If the measured value is not detected, list the detection limit value and select the less than (<) symbol in the non-detect indicator column.

QUALITY ASSURANCE/QUALITY CONTROL

Follow the method-specified quality assurance/quality control analyses and attach a data review summary once the analyses are complete.

	complete.
CBI? ☐ Yes	G3-2. Please attach an aerial photograph or drawing showing the entire waste management unit (i.e., pond/impoundment unit or landfill) that shows the boundaries and identifies all leachate collection points and the active and inactive areas of the pond/impoundment or landfill Also, indicate the leachate sample location(s) used for this sample collection in the aerial photograph or drawing of the pond/impoundment unit or landfill.
	○ I have attached the aerial photograph
	◯ I did not attach the aerial photograph. Explain why:
CBI? ☐ Yes	G3-3. Please identify the leachate sample locations used for this sample collection in the block diagram previously requested in Question F4-2.

Leachate sampling collection locations identified on the block diagram requested in Part F, Question F4-2.

Part: G

Section Title: 4. Sample Collection Information

Pond/Impoundment

Instructions: Complete Table G-1 for each *pond/impoundment* unit and *landfill* that requires *leachate* sampling and is used for the storage, treatment, and/or disposal of *residues* or by-products (or *sludges* or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, *fly ash*, *bottom ash*, boiler slag, or flue gas desulfurization (FGD) system residues. This includes liquid-borne material and solid material. Enter the pond/impoundment unit or landfill ID in the first column of Table G-1 (use pond/impoundment unit and landfill IDs assigned in Table A-4 and Table A-6). Please provide all free response answers in the highlighted yellow areas.

Collect daily rainfall data starting two weeks prior to collection of the first sample through the day of the last sample collected and enter the date and inches of rainfall in Table G-2.

G4-1. In Table G-1, provide a description of the sample collection location, the date the sample was collected, the flow rate of the leachate stream from the collection point (select the units of the flow rate), and identify if the leachate stream is <u>treated</u> or <u>untreated</u>. If the leachate sample is treated, provide the leachate treatment system ID previously identified in Table F-5.

Table G-1. Sample Collection Information

Unit or Landfill ID (Use IDs from Tables A-4 and A-6)	Sample Collection Location	Sample Collection Location Description	Date of Sample Collection (mm/dd/yyyy)
Example	Untreated pond/impoundment Leachate Treatment System II	Common header area	01/25/10
	Leachate Treatment System II Sample Collection Location ▼	D:	
	Leachate Treatment System II Sample Collection Location ▼	D:	
	Sample Collection Location Leachate Treatment System II	D:	
	Sample Collection Location Leachate Treatment System II	D:	

CBI?

Yes

CBI?

☐ Yes

CBI?

Yes

CBI?

Yes

CBI?

☐ Yes

G4-2. In Table G-2, provide the inches of rainfall accumulated at the plant on a daily basis starting two weeks prior to the collection of the first leachate sample through the last day of sample collection.

Table G-2. Rainfall Data

Date	
(mm/dd/yyyy)	Inches of Rainfall
(IIIII/dd/yyyy)	iliches di namidii

Date (mm/dd/yyyy)	Inches of Rainfall
(22.37337	

CBI?

☐ Yes

CBI?

☐ Yes

CBI?

☐ Yes

CBI?

☐ Yes

CBI?

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name

Part: G

Section Title: 5. Waste Information

Instructions: Complete Table G-3 for each *pond/impoundment* unit and *landfill*, including those located on non-adjoining property, that is used for the storage, treatment, and/or disposal of *residues* or by-products (or *sludges* or water streams containing the residues or by-products) from the combustion of coal or petroleum coke, including, but not limited to, *fly ash*, *bottom ash*, boiler slag, or flue gas desulfurization (FGD) system residues. This includes liquid-borne material and solid material. Enter the pond/impoundment unit or landfill ID in the first column of Table G-3 (use pond/impoundment unit and landfill IDs assigned in Table A-4 and Table A-6). Please provide all free response answers in the highlighted yellow areas.

Make a copy of Section 5 to complete as many tables as needed to provide information for all pond/impoundment units and landfills, including those located on non-adjoining property, using the "Copy Section 5" button below.

Copy Section 5

G5-1. In Table G-3, indicate all process wastes, residues or by-products that are stored, treated, and/or disposed of in each pond/impoundment unit and/or landfill [Check all that apply]. Please provide any additional wastes not listed by selecting "Other" and specifying the process waste, residue, or by-product in the highlighted yellow space provided. Complete as many rows of the table as needed to represent all pond/impoundment units and landfills at the plant. If more rows are needed, make additional copies of Table G-3 and complete as many tables as needed to provide information for all pond/impoundment units and landfills identified in Table A-4 and A-6.

Table G-3. Waste Information

Pond/Impoundment Unit or Landfill ID (Use IDs from Tables A-4 and A-6)			Type and Amo	unt of Waste		
	☐ Fly ash	tons	FGD Calcium Sulfate (Gypsum)	tons	Other:	tons
	☐ Bottom ash	tons	FGD Calcium Sulfate - Not Pozzolanic	tons	Other:	tons
	☐ Boiler slag	tons	FGD Pozzolanic Material	tons	Other:	tons
	☐ Fly ash	tons	FGD Calcium Sulfate (Gypsum)	tons	Other:	tons
	☐ Bottom ash	tons	FGD Calcium Sulfate - Not Pozzolanic	tons	Other:	tons
	☐ Boiler slag	tons	FGD Pozzolanic Material	tons	Other:	tons
	☐ Fly ash	tons	FGD Calcium Sulfate (Gypsum)	tons	Other:	tons
	☐ Bottom ash	tons	FGD Calcium Sulfate - Not Pozzolanic	tons	Other:	tons
	☐ Boiler slag	tons	FGD Pozzolanic Material	tons	Other:	tons
	☐ Fly ash	tons	FGD Calcium Sulfate (Gypsum)	tons	Other:	tons
	☐ Bottom ash	tons	FGD Calcium Sulfate - Not Pozzolanic	tons	Other:	tons
	☐ Boiler slag	tons	FGD Pozzolanic Material	tons	Other:	tons
	☐ Fly ash	tons	FGD Calcium Sulfate (Gypsum)	tons	Other:	tons
	☐ Bottom ash	tons	FGD Calcium Sulfate - Not Pozzolanic	tons	Other:	tons
	☐ Boiler slag	tons	FGD Pozzolanic Material	tons	Other:	tons

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CBI?

Yes

Plant ID: Insert Plant ID
Plant Name: Insert Plant Name

Pond/Impoundment Unit or Landfill ID: Insert ID

Sample Collection Location: Sample Collection Location

Part: G

Section Title: Laboratory Analytical Data Form

Instructions: Complete Table G-4 for each <u>untreated</u> and <u>treated</u> sample collection locations. Enter the pond/impoundment unit or landfill ID (use pond/impoundment unit and landfill IDs assigned in Table A-4 and Table A-6) and the sample collection location (identified previously in Table G-1) in the spaces provided above. Also, identify the name of the analytical laboratory that conducted the analyses and provide the sample collection location description previously identified in Table G-1. Report all results, including those below the reporting limit. Identify results that are less than the method detection limit (MDL), and results that are between the detection and reporting limits. For example, if the MDL is equal to 5 ng/L, the reporting limit is equal to 15 ng/L, and the value reported by the laboratory is 12 ng/L, report 12 ng/L as the measured value and identify and describe any qualifiers on the data in the corresponding column. If the measured value is not detected, list the detection limit value and select the less than (<) symbol in the non-detect indicator column. Please provide all free response answers in the highlighted yellow areas.

Make a copy of Sampling Results Table for the each pond/impoundment unit and landfill chosen for the leachate sample collection using the "Copy Sampling Results Table" button below.

CBI?	Name of analytical laboratory:	
Yes	Data review summary attached.	
	Copy Sampling Results Table	
CBI? □ Yes	Sample collection location description:	

Table G-4. Leachate Sampling Analytical Data Form

Name of Analyte	CAS Number	Non- Detect Indicator	Concentration*	Analytical Method Used	Method Detection Limit (MDL) (μg/L)	Reporting Limit (μg/L)	Qualifiers for the Measurement
				EPA Method 200.7 ▼			Detected in laboratory blank at less
Example - Arsenic	7440-38-2	Non-Detec ▼	350	Other:	2	10	than 5 times the sample result
				Analytical Method			
Aluminum	7429-90-5	Non-Detec ▼		Other:			
				Analytical Method			
Antimony	7440-36-0	Non-Detec ▼		Other:			
				Analytical Method			
Arsenic	7440-38-2	Non-Detec ▼		Other:			
				Analytical Method			
Barium	7440-39-3	Non-Detec ▼		Other:			
				Analytical Method			
Beryllium	7440-41-7	Non-Detec ▼		Other:			
				Analytical Method			
Boron	7440-42-8	Non-Detec ▼		Other:			
				Analytical Method			
Cadmium	7440-43-9	Non-Detec ▼		Other:			

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	1		Analytical Method ▼		
		Non Bata	, , , , , , , , , , , , , , , , , , ,		
Calcium	7440-70-2	Non-Detec ▼	Other:		
			Analytical Method ▼		
Chromium	7440-47-3	Non-Detec ▼	Other:		
			Analytical Method ▼		
Cobalt	7440-48-4	Non-Detec ▼	Other:		
			Analytical Method ▼		
Copper	7440-50-8	Non-Detec ▼	Other:		
Сорро.	7		Analytical Method		
Iron	7439-89-6	Non-Detec ▼	Other:		
Iron	7439-69-6		Analytical Method ▼		
	7.00.00.1	Non-Detec ▼			
Lead	7439-92-1	Non-Deted +	Other:		
			Analytical Method ▼		
Magnesium	7439-95-4	Non-Detec ▼	Other:		
			Analytical Method ▼		
Manganese	7439-95-4	Non-Detec ▼	Other:		
Mahabalan	7400 00 7	Non Bata	Analytical Method ▼		
Molybdenum	7439-98-7	Non-Detec ▼	Other:		
Nickel	7440-02-0	Non-Detec ▼	Analytical Method ▼ Other:		
Nickei	7440-02-0	Non-Detec V	Analytical Method		
Selenium	7782-49-2	Non-Detec ▼	Other:		
Celemani	7702 40 2		Analytical Method ▼		
Silver	7440-22-4	Non-Detec ▼	Other:		
			Analytical Method ▼		
Sodium	7440-23-5	Non-Detec ▼	Other:		
			Analytical Method ▼		
Sulfate	No CAS	Non-Detec ▼	Other:		
			Analytical Method		
Thallium	7440-28-0	Non-Detec ▼	Other:		
			Analytical Method <u>▼</u>		
Tin	7440-31-5	Non-Detec ▼	Other:		
			Analytical Method ▼		
Titanium	7440-32-6	Non-Detec ▼	Other:		
Mara adicura	7440.00.0	Non-Detec ▼	Analytical Method ▼		
Vanadium	7440-62-2	Non-Detec ▼	Other: Analytical Method		
Zina	7440-66-6	Non-Detec ▼	Analytical Method ▼ Other:		
Zinc	7440-00-0	Non Detter	Analytical Method ▼		
Mercury	7439-97-6	Non-Detec ▼	Other:		
Moreary	7 100 07 0	1	Analytical Method		
Chlorides	No CAS	Non-Detec ▼	Other:		
			Analytical Method ▼		
Total dissolved solids (TDS)	No CAS	Non-Detec ▼	Other:		
, ,			Analytical Method		
Total suspended solids (TSS)	No CAS	Non-Detec ▼	Other:		
			Analytical Method ▼		
рН	No CAS	Non-Detec ▼	Other:		
*If not detected, list the detection	limit value and a	calact the lace	than (<) symbol in the non-detect indicator of	olumn	

^{*}If not detected, list the detection limit value and select the less than (<) symbol in the non-detect indicator column.

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Approved: May 20, 2010

Plant Name: Insert Plant ID
Plant ID: Insert Plant Name

Part: G

Section Title: Part G Comments

Instructions: Cross reference your comments by question number and indicate the confidential status of your comment by checking the box next to "Yes" under

"CBI?" (Confidential Business Information).

	Question Number	Comment
CBI? ☐ Yes		

CBI?	
CBI?	
CBI? ☐ Yes	
CBI?	
CBI? ☐ Yes	
CBI?	
CBI?	
CBI?	
CBI? ☐ Yes	

Part G Drop Downs

Analytical Method
Analytical Method
40 CRF Part 136-approved
EPA Method 200.7
EPA Method 200.8
EPA Method 1631E
Other

Non-Detect Drop Down		
Non-Detect Drop Down		
<		

Sample Collection Location		
Sample Collection Location		
Treated pond/impoundment		
Untreated pond/impoundment		
Treated Landfill		
Untreated Landfill		

Approved: May 20, 2010